

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE- SEMESTER-V (NEW) EXAMINATION – WINTER 2020****Subject Code:3150710****Date:01/02/2021****Subject Name:Computer Networks****Time:10:30 AM TO 12:30 PM****Total Marks: 56****Instructions:**

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

	Marks
<b>Q.1</b> (a) Explain how bit rate and baud rate are related with respect to Ethernet.	<b>03</b>
(b) Differentiate between connection oriented versus connection less services in networks.	<b>04</b>
(c) Explain the working of binary count down MAC layer protocol in detail.	<b>07</b>
<b>Q.2</b> (a) Explain how multicasting differs from multiple unicasting in networks.	<b>03</b>
(b) Discriminate fully qualified domain name from partially qualified domain name.	<b>04</b>
(c) Explain the working of CSMA/CD protocol in detail.	<b>07</b>
<b>Q.3</b> (a) A Bit stream 100100 is to be transmitted using standard CRC method with divisor value $x^3+x^2+1$ . Generate the CRC code word.	<b>03</b>
(b) How switch device is different from the router?	<b>04</b>
(c) Explain the problem of Count-to-infinity with example in distance vector routing algorithm.	<b>07</b>
<b>Q.4</b> (a) What is meant by encapsulation at transport layer?	<b>03</b>
(b) Explain flow and error control in TCP.	<b>04</b>
(c) What do you mean by sub-netting and super-netting? Explain it with example	<b>07</b>
<b>Q.5</b> (a) Explain NAT (Network Address Translation) as a solution to IP address depletion problem.	<b>03</b>
(b) What is the minimum and maximum size of the TCP and UDP segment?	<b>04</b>
(c) Explain leaky bucket algorithm for the network traffic shaping.	<b>07</b>
<b>Q.6</b> (a) Is deadlock possible in TCP? If yes, when?	<b>03</b>
(b) What is route aggregation? How it can be useful in Internet?	<b>04</b>
(c) Explain the significance of the following flags present in TCP segment header: 1) URG 2) ACK 3) PSH 4) RST 5) SYN 6) FIN	<b>07</b>
<b>Q.7</b> (a) How the Jitter is different from the delay in streaming applications?	<b>03</b>
(b) Explain the following TCP socket system calls: 1) socket() 2) bind() 3) listen() 4) accept()	<b>04</b>
(c) Give the well defined port number for the following protocols: 1) SMTP 2) DNS 3) HTTP 4) POP3 5) TELNET 6) HTTPS 7) SSH	<b>07</b>
<b>Q.8</b> (a) Is data compression is necessary at the presentation layer of OSI reference model? Explain it with proper reason.	<b>03</b>
(b) What do you mean by stream and datagram sockets?	<b>04</b>
(c) Explain the hierarchical DNS system	<b>07</b>

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